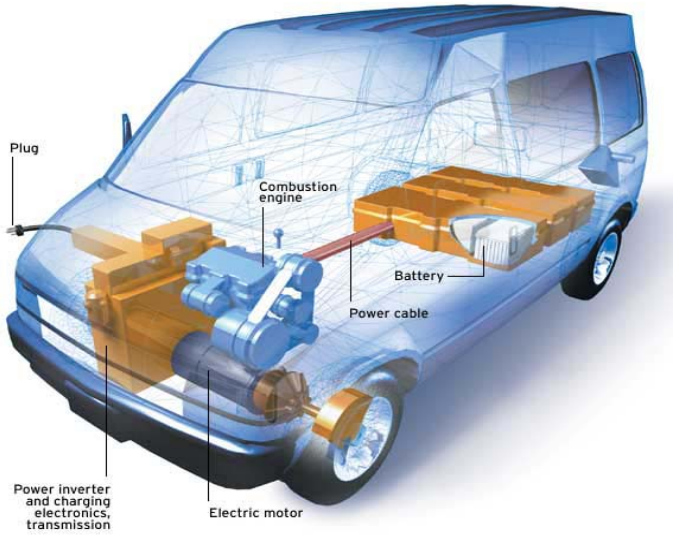
Plug-in Hybrid Electric Vehicles



Plug-in Hybrid Sprinter Van Schematic. Source: IEEE Spectrum Magazine

Plug-in hybrid electric vehicles are similar to today's hybrid vehicles such as the Toyota Prius, which uses gasoline and electricity to power the car. Unlike today's hybrids, which have small batteries and no zero-emission range, plug-in hybrids have larger batteries that can be recharged by plugging into a standard 110-volt household outlet. Plugging in can provide 20 to 60 miles of all-electric, zero-emission range before the engine comes on. Plug-in hybrids do not have to be plugged in to recharge, and if they are not, they operate like a no-plug hybrid.

For the last four years, the Electric Power Research Institute (EPRI) has led a collaborative effort with universities, utilities, state and local agencies including the California Air Resources Board and South Coast AQMD, federal agencies, automakers, and components suppliers to examine the market potential and technical feasibility of plug-in hybrids. EPRI and DaimlerChrysler have formed an alliance to build and test five plug-in hybrid Sprinter vans with 20 to 30 miles of ZEV range. Built in Germany, the vans arrive in early 2005. Two will go to the South Coast in a project jointly funded by the air district and Southern California Edison. A 20- to 30-vehicle demonstration is planned in Southern California.

Compared to non-plug hybrids, a plug-in hybrid offers:

- 25%–55% reduction in NO_x and ROG
- 35%–65% reduction in greenhouse gases
- 40%–80% reduction in petroleum

The percentage ranges above reflect the potential emissions reductions offered by plug-in hybrids with 20 miles ZEV range and 60 miles ZEV range.[1]

2010–2015 POTENTIAL[2]

Potential additional emissions reductions	7.5–9.5 tpd CO_2
Fuel savings	300–1,200 million gallons per year

CONTACT INFORMATION For more information, contact the EPRI Customer Assistance Center (EPRI CAC) at 800.313.3774 (askepri@epri.com).

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[1] EPRI HEV Working Group

[2] EPRI HEV Working Group, assumes 2 million plug-in hybrids on the road in 2015

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